



# Journal of Arts & Humanities

Volume 08, Issue 08, 2019: 01-16

Article Received: 16-07-2019

Accepted: 17-07-2019

Available Online: 10-08-2019

ISSN: 2167-9045 (Print), 2167-9053 (Online)

DOI: <http://dx.doi.org/10.18533/journal.v8i8.1699>

## Effect of Transformational Leadership Style and Knowledge Management on Organizational Innovation through Empowerment, Member Creativity and Learning Organization

Fransiska Ekobelawati<sup>1</sup>, Djoko Setyadi, M. Irfani Hendri

### ABSTRACT

In building an innovative organizational climate, one important element is transformational leadership. Headmasters, as leaders, must be able to provide motivation to teachers and make them always innovate in providing learning materials to students. The objective of this study is to analyze and determine the effect of transformational leadership style and knowledge management on organizational innovation through empowerment, member creativity and learning organization. This research includes explanatory research to find and limit what is applicable and researchable. Sampling in this study applies a saturated sampling method of 261 teachers from 6 schools. The results of this study include that: 1) transformational leadership (X1) has a significant and positive effect on empowerment (Z1), 2) transformational leadership (X1) has a significant and positive effect on member creativity (Z2), transformational leadership (X1) has a significant effect and positive on learning organization (Z3), 5) transformational leadership (X1) has a significant and positive effect on organizational innovation (Z4), 6) empowerment (Z1) has no significant and positive effect on organizational innovation (Z4), 7) learning organization (Z3) has significant and positive effect on organizational innovation (Z4), 8) knowledge management (X2) has a significant and positive effect on learning organization (Z3), and 9) knowledge management (X2) has a significant and positive effect on organizational innovation (Z4).

**Keywords:** Transformational leadership, knowledge management, organizational innovation.

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### 1. Introduction

<sup>1</sup> Postgraduate Program in Management, Faculty of Economics and Business, University of Tanjungpura, Pontianak, Indonesia. Corresponding Author. E-mail: sischasirao6@gmail.com

Education is long life needs. Every human need education whenever and wherever they are. Education is very important because humans will be difficult to develop their competencies without education; in fact, they will be retarded. Thus, in addition to having noble character and good morals, education must be truly directed to produce quality and competitive human beings. However, the issue of education is a complex one because there are many factors that determine the success of education. Therefore, education will always change, differ and vary depending on the factors that affect it; including factors in the development of science, technology, and art.

The government implements quite a number of programs through the establishment of policies and regulations that aim to improve the quality of better education; including the Curriculum Development Program, Management of School-Based Quality Improvement (MPMBS), Library Program, Assistance in Improving Quality Management (BMMM), Self-Help Assistance (BIS), Package Book Procurement, Teacher Quality Improvement, Direct Aid Fund (DBL), School Operational Assistance (BOS), and Special Student Assistance (BKM).

Based on the aspects of its implementation, these programs meet quite a number of problems; for instance, limited facilities and infrastructure, limited number of teaching staff, limited supporting facilities, limited access and accommodation, and various other limitations. Regarding these limitations, we should be able to find solutions so that we can maximize the implementation of these programs in the midst of these limitations.

One of the crucial tools of education in Indonesia which is also the place for teaching and learning activities is school. School is the place where the teaching and learning process takes place. A formal place that is used to educate the nation's future generation who have sufficient insight and knowledge to become a provision in developing the nation and state. Regarding its limitations, schools led by a headmaster are required to make new and sustainable breakthroughs so that they can continue to improve the quality of education through school innovation. Innovation will be useful for solving educational problems if the innovation is accepted and applied by education staff in managing education.

In building an innovative organizational climate, one important element is transformational leadership. Headmaster as a leader must be able to provide motivation to teachers and make them always innovate in providing learning materials to students. According to Sarros et al. (2008), transformational leadership refers to the behavior of leaders (headmaster) who motivate school members to identify organizational goals and interests (schools). This leader also has the capacity to motivate teachers to exceed the level of performance in line with expectations.

In creating organizational innovation in private high schools, in order to build a climate of innovation, it requires another variable, namely empowerment. Empowerment is one of the important practices in developing an innovation climate. Conger & Kanungo (1988) defined empowerment as a motivational concept of one's confidence in the abilities he/ she has. Some researchers have tested the effect of leadership style; for instance, transformational leadership toward empowerment (Ozaralli, 2002), (Barroso et al, 2008); (Jung et al, 2003); (Avolio et al, 2004). Jung et al (2003) stated that when a leader in an organization has an empowering attitude, he/ she will be able to create an innovative organizational climate (organizational innovation).

Another factor identified as being able to create innovativeness in an organization is creativity that is owned by the headmaster and teacher (member creativity). In an organization such as a school, when teachers have high creativity, they will be able to provide an innovative atmosphere in an organization. Creative teachers are school teachers who are identified as having the ability to create new learning ideas and methods (Gumuslouglu & Ilsev, 2009). One variable that is believed to shape the climate for creative teachers is the presence of leaders (headmasters) who have transformational leadership styles. There is a considerable amount of research that supports the claim that the transformational style of leadership will have an impact on the creativity possessed by teachers such as those conducted by Gong et al (2009), Wang & Rode (2014), and Shin & Zhou (2003).

Learning organization is the capability in an organization (school) that is used to maintain or improve performance based on existing experience. With the existence of learning organization, an organization (school) is expected to be able to have an innovative climate. This statement is reinforced by research conducted by García-Morales et al (2012), Calantone et al (2002), and Tushman & Nadler

(1986) who stated that when a school has a learning organization, it will be able to create an innovative organization (school).

The last variable, which is identified as being able to build an organizational innovation climate in a school organization, is knowledge management. Liao & Wu (2010) and Cui et al (2005) stated that knowledge management consists of several processes such as knowledge acquisition, knowledge conversion, and knowledge applications. When a school has good knowledge management, it will be able to form an innovative school climate. Some researchers support the statement that knowledge management is able to affect organizational innovation (Liao & Wu, 2010; Darroch, 2005). In addition to affecting organizational innovation, knowledge management turns out to be able to affect learning organization. So, when a school is able to have management knowledge, it will also be able to encourage the creation of learning organization. Acquisition, conversion, and application of knowledge in the knowledge management process are the strategic keys of learning organization. The relationship of these two variables is increasingly supported by research conducted by Liao & Wu (2010).

From several previous studies, it builds a more comprehensive model in examining the problem in this study based on previous research and related directly to the problems to be under study with different cultural and technological backgrounds in Indonesia, especially in Pontianak City which is the setting of this study. In this case, the phenomenon that occurs in high schools in Pontianak City is that there are still some schools that have not been able to innovate well in providing learning methods to students. In fact, these schools have accredited by A accreditation which they should excel in innovating.

Innovation is expected to improve the quality of education/ learning. For the world of education, it is a necessity to always look at the changes that occur so that they can be responded intelligently in order to improve the quality of education.

SMA Katolik Santo Petrus Pontianak has also done the same thing as SMA Kristen Immanuel Pontianak in terms of learning. However, SMA Katolik Santo Petrus Pontianak has not yet begun to make a new breakthrough by opening an international class like what SMA Kristen Immanuel Pontianak does.

SMA Santo Fransiskus Asisi Pontianak has not been able to implement innovations such as SMA Kristen Immanuel and SMA Katolik Santo Petrus. SMA Santo Fransiskus Asisi Pontianak must do a lot of innovation in terms of learning and technology that will be used by schools to improve the quality of education considering that SMA Santo Fransiskus Asisi has also been accredited by accreditation A. SMA Santo Paulus Pontianak has applied innovations in the field of learning technology and school governance. SMA Santo Paulus Pontianak can be equal to SMA Kristen Immanuel and SMA Katolik Santo Petrus in a technology-based learning method. SMA Gembala Baik Pontianak has also made innovations in learning methods and school environments. Every year, the headmaster of SMA Gembala Baik Pontianak evaluates the performance of the teachers. SMA Bina Mulia Pontianak is very good at implementing innovation. SMA Bina Mulia Pontianak is very universal and most different from other schools in terms of the learning process in the field of religion. SMA Bina Mulia can provide religious teachers based on five religions adopted by Indonesian citizens. In terms of learning, this school has taught 4 languages as the main subjects consisting of Indonesian, Japanese, Mandarin and English.

The six schools that are the object of research have the same characteristics. The first is the existence of a vision and mission that is understood together by the school community. It can be broken down into three things which include the existence of a system of values and beliefs that are mutually understood by the school community, the existence of clear school goals and the presence of instructional leadership. There are also student involvement and responsibilities, a supportive physical environment, positive student behavior, family and community support for the school. It also included an emphasis on the learning process centered on curriculum and instructional, the development and collegiality of teachers, high expectations from the school community, and repeated monitoring of student learning progress.

Several previous studies have examined transformational leadership, knowledge management, empowerment, member creativity, and learning organization on organizational innovation with diverse objects. For these reasons, the authors consider this topic to be investigated again, especially with the object of a private high school that has been accredited by accreditation A, whose characteristics are

different from the objects in previous studies. This allows for differences in the results of research and cultural differences, considering that this study is conducted in Pontianak which is also very different from previous studies which saw the problem of schools in developed countries such as Korea and other countries. This is what according to researchers will be very different from previous researchers.

## **2. Literature review**

### **2.1 Transformational leadership**

It is identified that transformational leadership is one variable that is quite crucial in the realm of research and practice. Transformational leadership is one form of the existing leadership type. Burns (1978) introduced the theory of transformational leadership which was later developed by Bass (1985). The basic definition of transformational leadership theory is that, with intellectual stimulation, leaders can expand and elevate the interests of their employees and stimulate the organizational members to the old problems in new ways.

Koh et al (1995), Lowe et al (1996), Dumdum et al (2002), Bono & Judge, (2003), and Walumbwa & Lawler (2003) explained that transformational leadership is one variable that is quite crucial in the realm of research and practice. Transformational leadership is one form of the existing leadership type. Transformational leadership itself is one type of leadership that is pretty much researched because of its effect on other variables such as the commitment held by employees to the organization.

Based on some previous opinions, the notion of transformational leadership, presented by Sarros et al (2008), has its own difference points. In previous research, transformational leadership was defined as ability, effect, and type. However, in another context, Sarros et al (2008) described transformational leadership as a behavior that is owned by a leader. In this case, the behavior of the individual leader focuses on the behavior of the leader as a motivator who is able to improve the performance of the individual in the collective interest of the organization.

### **2.2 Empowerment**

Bennis & Nanus (1985) explained that empowerment is considered as one of the management practices that is quite crucial in an organizational context. Then, empowerment is also considered as the main variable that has an important role in the effectiveness of an organization. Conger & Kanungo (1988) defined empowerment as a motivational concept of individual trust in their ability to carry out activities using the skills they have.

The concept of empowerment also means that someone will be able to behave independently and responsibly. London (1993) explained that empowerment is an activity of a leader in ensuring that his/ her employees have the authority to do their jobs. Furthermore, it is stated that there are 4 (four) sources of confidence in the individual's belief in their ability to carry out all activities using their expertise. It includes experience, modeling or examples from others, environmental influences, and psychological conditions. Someone, who has individual trust in their abilities, will be easily empowered to carry out activities using the high skills they have.

### **2.3 Member's creativity**

Amabile (1983) explained that creativity is an action in issuing new opinions or ideas that are useful for the organization. Mumford & Gustafson (1988) and Redmond et al (1993) explained that feelings of self-confidence can affect higher performance creativity. In addition, the formation of leaders who can develop member's confidence can positively influence member's creativity. Furthermore Amabile (1983) explained that previous research stated that when workers have creativity in working, they will be able to provide something new in the form of work, solutions or others, Oldham & Cummings (1996) explained that creativity is at the individual level. Amabile, et al., (1983) explained that individual perceptions of the work environment are key determinants of one's creativity.

In an organization, the existing individuals are basically expected to have adequate creativity. However, in these organizations, it is also sometimes expected that individual creativity is in accordance with existing conditions. This is because an organization has several parts that do not require high creativity.

### **2.4 Learning organization**

De Geus (1988) and Stata & Almond (1989) explained that organizational learning is an important source and sustainable competitive advantage that is owned by the organization and is an



important driver of organizational performance. Huber (1991) explained that learning organization is information processing that aims to store knowledge in the organization's memory. Boydell & Leary (1996) and Chaston & Badger (1999) used and tested organizational learning model, which is related to implementation, improvement, and integration. Boydell & Leary (1996) and Chaston & Badger (1999) built organizational learning using 21 scale items from five dimensions which include clarity of purpose and mission, commitment to leadership and empowerment, experimentation, knowledge transfer and problem-solving group.

## **2.5 Knowledge management**

Gray (1996) explained that knowledge management is an integrated approach and integration to creating and capturing organizations, accesses, and uses of company asset intelligence. Gold et al (2001) explained that knowledge management has three important interrelated processes. It includes knowledge acquisition, knowledge conversion, and knowledge application. Gold et al (2001) and Cui et al (2005) explained that knowledge management is related to activities that come from the perspective of organizational capability.

Knowledge management in this context is defined as the ability of an organization to acquire, convert, apply, and also protect the knowledge that it has. Knowledge is seen as a very important variable to be processed. It is because knowledge is one of the most important resources that can be a competitive advantage that an organization possesses. Turban (2008) defined knowledge management as a process that helps companies identify, select, organize, disseminate, and transfer information and expertise that are part of the company's memory and are usually in the organization in an unstructured form. In addition, it can maximize the value of an organization's intelligence through different functions and locations. Knowledge management regulates that the success of an organization is based on specific knowledge. Skill is the key that will provide competitiveness in an organization.

Knowledge management is an effort to increase useful knowledge in organizations, including familiarizing the culture of communication between personnel, providing opportunities for learning, and promoting knowledge sharing. Then, this business will create and maintain an increase in the value of the core business competencies by utilizing existing information technology.

## **2.6 Organizational innovation**

Woodman et al (1993) explained that organizational innovation can be interpreted as creating new services that are valuable and useful in an organizational context. It was also explained that organizational innovation is the creation of valuable, useful new services, service ideas, procedures, and processes carried out through individuals who work together in complex social systems. Cummings & Oldham (1997), Tierney et al (1999), and Andriopoulos & Lowe (2000) explained that this reality also requires an organization to increase its efficiency and effectiveness. In addition, another crucial thing that they must have is creativity so that they are able to create and develop the services they have. This reality also makes researchers more aware that they must look for a variable that can spur the creativity that the organization has so that it is able to create ideas and services desired by the organization.

Brett & Okumura (1998) and Yukl (2001) explained that this change places the teacher as a much more selective individual or entity with varied desires such as the desire to have services with far more complete features, better quality, better services better and more competitive. Damanpour (1991) described organizational innovation as a new service that is introduced that can meet the needs of other entities outside the organization.

This creativity will be able to encourage an organization to have an innovative climate. Therefore, it is able to issue the best service. Organizational innovation is one variable that is considered crucial in an organization. In an era that has such high competition, an organization is required to have a competitive advantage. This competitive advantage is felt to be very necessary so that an organization has its own characteristics compared to other organizations that are their competitors. The era of globalization at this time also places consumers as one of the active information connoisseurs. In this case they also become closer to the producers of the services they use.

## **2.7 Conceptual framework**

The conceptual framework of this study can be seen in Figure 1.

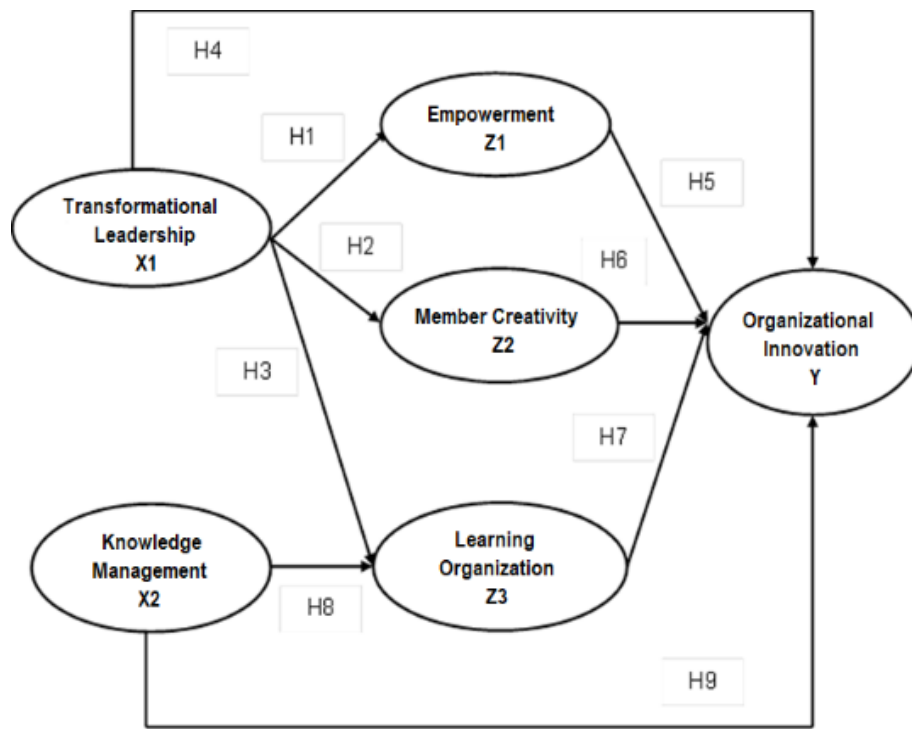


Figure 1. Conceptual Framework of the Study

#### Description of Figure 3.2

- X1 = Transformational Leadership
- X1.1 = Charisma
- X1.2 = Very Inspirational and Motivating
- X1.3 = Very Smart and Encouraging
- X1.4 = Individual Consideration
- X2 = Knowledge Management
- X2.1 = Personal Knowledge
- X2.2 = Work Process
- X2.3 = Technology
- Z1 = Empowerment
- Z1.1 = Attention
- Z1.2 = Skill
- Z1.3 = Self-Determination
- Z1.4 = Impact
- Z2 = Member Creativity
- Z2.1 = Originality
- Z2.2 = Courage to Take Risks
- Z2.3 = New Findings
- Z2.4 = Troubleshooting
- Z2.5 = Finding New Idea
- Z2.6 = Easy-to-Implement Idea
- Z3 = Learning Organization
- Z3.1 = Knowledge Creation
- Z3.2 = Information Dissemination
- Z3.3 = Importance of Organizational Knowledge
- Y1 = Organizational Innovation
- Y1.1 = Commitment to Innovation
- Y1.2 = Innovation Realization

### 3. Research method

#### 3.1 Research approach

This study begins by exploring the theories and concepts that will be used. This explanatory research activity is used to find and limit research problems so that they are applicable and researchable. This type of research can be classified as fundamental research. Moreover, this study applies a quantitative approach. The process starts with theory. Furthermore, it is processed to be a research hypothesis that is followed by measurement and operational concepts. All variables are measured using a questionnaire by applying the attitude scale model; i.e. the Likert Scale. The measurement results are score data that are quantitative and numerical. Furthermore, analysis using statistical methods is carried out.

#### 3.2 Research time and setting

This research was conducted in 6 (six) high schools accredited by accreditation A in Pontianak City consisting of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik, and SMA Bina Mulia where they are the best school in Pontianak City. Data collection in this study was conducted in January and February 2019.

#### 3.3 Population and sample

The population was obtained from all teachers in 6 (six) high schools accredited by A accreditation in Pontianak City consisting of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik, and SMA Bina Mulia as many as 261 teachers (population access). All population members, as many as 261 teachers from 6 schools, were feasible all to be studied. So, all members of the population are used as research samples. Thus, the sampling method in this study is saturated sampling. So, this research is a type of census research; i.e. research on all members of the population.

#### 3.4 Data collection technique

Data collection techniques in this research applies questionnaire method. A questionnaire is a list of questions that logically relate to research problems. This research identified 6 research variables that have meaning in testing hypotheses. The questions of the questionnaire were made in sufficient detail and complete.

Furthermore, the respondents' answers collected were recorded based on the code according to the school code when it was sent. So, it makes it easy to detect and confirm data compatibility. The data is entered into a database that is processed using Microsoft Excel and PLS-SEM programs using the WarpPLS6.0 program in accordance with the needs and interests to achieve the objectives of the analysis in this research.

### 4. Results of hypothesis testing

The second part of SEM analysis is the interpretation of structural models. It presents relationships between research variables. The structural model coefficient states the magnitude of the relationship between one variable to another variable and there is a significant effect between one variable on the other variables

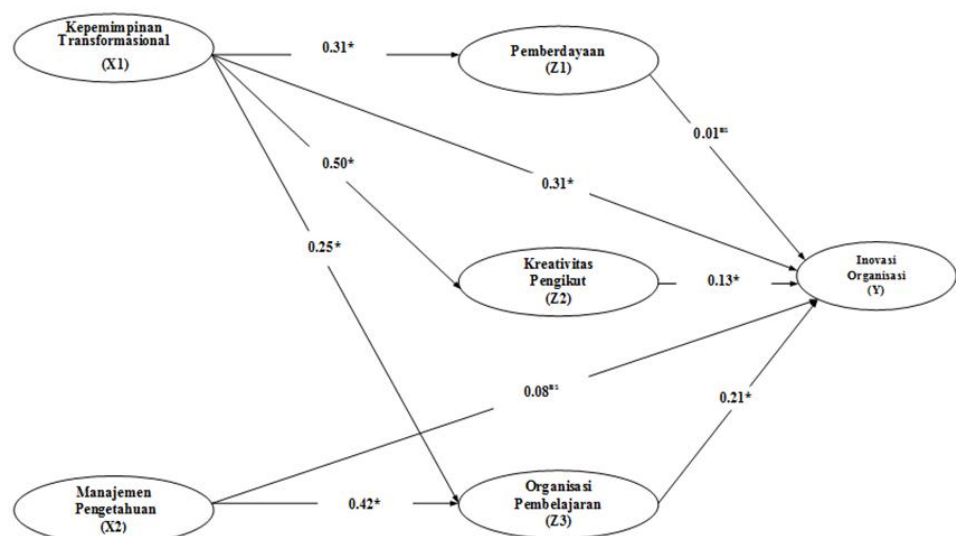


Figure 2. Path Diagram of Hypothesis Testing Results

if  $p\text{-value} < 0.05$ . There are two kinds of effect in SEM, i.e. direct effect and indirect effects.

Description: \* significant, ns not significant

The results of hypothesis testing are obtained as follows:

a. The effect of transformational leadership ( $X_1$ ) on empowerment ( $Z_1$ ) obtained a structural coefficient of 0.310 and  $p\text{-value} < 0.001$ . Since  $p\text{-value} < 0.05$  and the coefficient are positive, it indicates a significant and positive effect between transformational leadership ( $X_1$ ) on empowerment ( $Z_1$ ). It means that higher transformational leadership ( $X_1$ ) will lead to higher empowerment ( $Z_1$ ). Thus, hypothesis 1 of this study is accepted.

The findings of this study support the theories that have been suggested by Burns (1978) and introduce the transformational leadership theory developed by Bass (1985). The basic definition of transformational leadership theory is the presence of intellectual stimulation in which leaders can expand and elevate the interests of their employees and stimulate members to think of old problems in new ways. Bennis & Nanus (1985) explained that empowerment is a management practice that is considered quite crucial in an organizational context. Then empowerment is also considered as the main variable that has an important role in the effectiveness of an organization. Conger & Kanungo (1988) defined empowerment as a motivational concept in the individual's belief in their ability to carry out activities using the skills they have.

The findings of this study also support previous research conducted by Ozaralli (2003) who said that transformational leadership variables can contribute to predicting the employee's empowerment. From the results of this study, it can also be seen that the more team members feel empowerment, the more effective the team will be.

The findings of this study also support the results of the study conducted by Avolio et al (2004) who used a sample of 520 staff nurses working in the largest public hospital in Singapore. They examine whether psychological empowerment can mediate the attachment of transformational leadership to member commitment to the organization. In addition, they examine how the direct and indirect leadership structural distance between leaders and members can moderate the relationship between leadership and organizational commitment.

b. The effect of transformational leadership ( $X_1$ ) on member creativity ( $Z_2$ ) obtained a structural coefficient of 0.502 and  $p\text{-value} < 0.001$ . Since  $p\text{-value} < 0.05$  and the coefficient are positive, it indicates a significant and positive effect between transformational leadership ( $X_1$ ) on member creativity ( $Z_2$ ). It means that higher transformational leadership ( $X_1$ ), will result in higher member creativity ( $Z_2$ ). Thus, hypothesis 2 of this study was accepted.

The findings of this study support the theories that have been suggested by Burns (1978) and introduce the transformational leadership theory developed by Bass (1985). The basic definition of transformational leadership theory is that by using intellectual stimulation, leaders can expand and elevate the interests of their employees and stimulate members to think of old problems in new ways. Furthermore, Amabile (1983) explained that previous research found that when workers have creativity in working, they will be able to give something new either in the form of work, solutions or something else. Oldham & Cummings (1996) explained that creativity is at the individual level.

Liao & Wu (2010) conducted a study on the effect given by transformational leadership on work attitudes and behaviors possessed by employees. However, among these relationships, there are things that are rarely done, i.e. the mechanism by which transformational leadership can affect employees on a systematic model. The purpose of this study is to analyze how transformational leadership is able to develop job satisfaction in employees and also effective commitment held by employees to the organization. The results of this study indicated that psychological empowerment is able to mediate the relationship between transformational leadership and employee attitudes.

a. The effect of transformational leadership ( $X_1$ ) on learning organizations ( $Z_3$ ) obtained a structural coefficient of 0.250 and  $p\text{-value} < 0.001$ . Since  $p\text{-value} < 0.05$ , it indicates a significant effect between transformational leadership ( $X_1$ ) on learning organizations ( $Z_3$ ). It means that higher transformational leadership ( $X_1$ ) will result in higher learning organizations ( $Z_3$ ). Thus, hypothesis 3 of this study was accepted.

The findings of this study support the theories that have been suggested by Burns (1978) and introduce transformational leadership theory developed by Bass (1985). The basic definition of transformational leadership theory is that by using intellectual stimulation, leaders can expand and



elevate the interests of their employees and stimulate members to think of old problems in new ways. Furthermore, De Geus (1988) and Stata & Almond (1989) explained that organizational learning is one of the important sources and sustainable competitive advantage that is owned by the organization and is an important controller for organizational performance. Huber (1991) described organizational learning as information processing that aims to store knowledge in organizational memory.

The findings of this study also support previous studies conducted by Amitay et al (2005). The study aimed to examine the relationship between the types of leadership variables possessed by unit managers with the level of organizational learning in the units under study. The study took a total sample of 513 workers from 44 communities in health clinic organizations in Israel. The study also presented two hypotheses. First is a hypothesis that connects between transformational leadership variables and learning organizations. Then, the second is a hypothesis that connects between learning organization value variables and mechanism learning organizations. The results of the study indicated that there is a positive and significant relationship between the two hypotheses. In addition, the study also found that transactional leadership had a negative effect on learning organization.

The findings of this study also support previous studies conducted by García-Morales et al (2012). Their research examined the relationship between transformational leadership and also the performance possessed by the organization mediated by two other variables; i.e. organizational learning and organizational innovation. This study argues that testing the indirect relationship between transformational leadership and organizational performance mediated by the above variables is something that is rarely done even though the relationship is identified as quite important.

b. The effect of transformational leadership ( $X_1$ ) on organizational innovation ( $Y$ ) obtained a structural coefficient of 0.312 and  $p$ -value  $< 0.001$ . Since  $p$ -value  $< 0.05$ , it indicates a significant effect between transformational leadership ( $X_1$ ) on organizational innovation ( $Y$ ). It means that higher transformational leadership ( $X_1$ ) will lead to higher organizational innovation ( $Y$ ). Thus, the research hypothesis 4 is accepted.

The findings of this study support the theories that has introduced by Burns (1978) and introduced transformational leadership theory that was developed by Bass (1985). The basic definition of transformational leadership theory is by using intellectual stimulation, leaders can expand and lift the interests of their employees and stimulate members to think of old problems in new ways.

The findings of this study also support previous research conducted by Jung et al (2003) which focused their research on the relationship between transformational leadership and organizational innovation. The study tested 4 hypotheses related to how the type of transformational leadership has a direct or indirect effect on innovation owned by a company. The research samples were taken from 32 different companies in Taiwan that focused on the electronics and communication industries. The results of the study showed that the type of transformational leadership is able to have a positive and significant direct effect on organizational innovation. In addition, transformational leadership was also identified as able to have a positive and significant effect on empowerment and innovation-supporting organizational climate. This research is different from previous research. Previous research found that transformational leadership has a significant and negative effect on organizational innovation.

The findings of this study also support previous research conducted by Gumusluoglu & Ilsev (2009). The study was unique compared to research that examined the relationship between transformational leadership and other organizational innovation. This research provides a novelty regarding the conditions when the relationship between transformational leadership and organizational innovation occurs or conditions when the relationship increases. The research was also conducted to investigate the relationship between transformational leadership and organizational innovation. Then, the research is also intended to determine whether there are internal or external factors that can affect the relationship between these variables. Internal factors in this study are used as moderating variables where the variable is internal support for innovation. Then, external factors, in this case, include support from outside the organization relating to knowledge and also resource acquisition. The sample of the study was 163 respondents who came from employees and also managers from 43 micro and small companies of software developers in Turkey. The results of this study show that transformational leadership is able to affect creativity at the level of individuals and organizations. At the individual level, there is a positive relationship between transformational

leadership and individual employee creativity. In addition, transformational leadership affects individual creativity through psychological empowerment. At the organizational level, transformational leadership is able to positively have an effect on organizational innovation that is measured by using a tool called market-oriented criterion that is developed specifically for developing countries and also emerging industries.

c. The effect of empowerment (Z1) on organizational innovation (Y) obtained a structural coefficient of 0.005 and p-value of 0.465. Since p-value > 0.05 and the coefficient are positive, it indicates that there is no significant effect between empowerment (Z1) on organizational innovation (Y). Thus, the research hypothesis 5 is rejected.

The findings of this study contradict the research conducted by Jung et al (2003). Their research focuses on the relationship between transformational leadership and organizational innovation. That study examines 4 hypotheses related to how leadership types such as transformational leadership directly or indirectly affect the innovation of a company. The research sample was taken from 32 different companies in Taiwan that focused on the electronics and communication industry. The results of that study show that the type of transformational leadership is able to provide a positive and significant direct effect on organizational innovation. In addition, transformational leadership was also identified as being able to provide a positive and significant effect on empowerment as well as innovation-supporting organizational climate. This research is different from previous research. Previous research found that transformational leadership has a significant and negative effect on organizational innovation.

d. The effect of member creativity (Z2) on organizational innovation (Y) obtained a structural coefficient of 0.133 and p-value 0.014. Since p-value < 0.05 and the coefficient are positive, it indicates a significant and positive effect between member creativity (Z2) on organizational innovation (Y). It means that the higher member creativity (Z2) will lead to higher organizational innovation (Y). Thus, the research hypothesis 6 is accepted.

The findings of this study also support the theories that have been raised by Amabile (1983) who explained that member creativity means issuing new opinions or ideas that are useful for the organization. Mumford & Gustafson (1988) and Redmond et al (1993) explained that member creativity is a feeling of confidence that can affect higher performance creativity and the formation of leaders who can develop their member's self-confidence positively and affect member creativity.

The findings of this study also support previous research conducted by Gumusluoglu & Ilsev (2009). This study is unique compared to other studies that examine the relationship between transformational leadership and organizational innovation. This study provides a novelty about the conditions when the relationship between transformational leadership and organizational innovation occurs or conditions when the relationship increases. This research was also conducted to investigate the relationship between transformational leadership and organizational innovation. Then this study is also intended to determine whether there are internal or external factors that can affect the relationship between these variables. Internal factors in this study are used as moderating variables where the variable is internal support for innovation. Then, external factors, in this case, are support from outside the organization related to knowledge and also resource acquisition.

e. The effect of organizational learning (Z3) on organizational innovation (Y), obtained a structural coefficient of 0.211 and p-value < 0.001. Since p-value < 0.05, it indicates no significant effect between organizational learning (Z3) on organizational innovation (Y). It means that higher learning organization (Z3) will lead to higher organizational innovation (Y). Thus, the research hypothesis 7 is accepted.

The findings of this study also support the research conducted by García-Morales et al (2012). The study examined the relationship between transformational leadership and also the performance possessed by the organization mediated by two other variables; i.e. organizational learning and organizational innovation. This study argued that testing the indirect relationship between transformational leadership and organizational performance mediated by the above variables is rarely done even though the relationship is quite important.

The findings of this study also support the research conducted by Hsiao et al (2011). The study used a sample of 330 teachers who were responsible for administration in post-secondary schools. The findings of the study prove that transformational leadership and learning organizations have a

significant positive relationship effect on organizational innovation. This study also showed that there is a significant effect on the mediating role in organizational learning on the relationship between transformational leadership and organizational innovation. The study found that if principals use transformational leadership strategies and learning organization at the same time, learning organization will be very effective in achieving organizational innovation in post-secondary schools.

The findings of this study also support the research conducted by Hsiao et al (2009). The study used a sample of 418 teachers from 20 vocational high schools in the northern region of Taiwan. The final sample amounted to 290 teachers consisting of 141 (48.6%) men and 149 (51.4%) women. There were 39.7% of teachers having a bachelor's degree, 56.6% having a master's degree and 2.8% having a doctoral degree. Descriptive statistical analysis, correlation, and regression analysis were carried out as statistical methods in this study. The results showed that transformational leadership had a significance of 41.3% on organizational innovation. Therefore, these findings support Hypothesis 1. Model 2 reveals that for public school teachers, transformational leadership is very influential for organizational learning and is significant at 58.1% in organizational innovation. Model 3 also reveals that for private school teachers, transformational leadership is very influential for learning organizations and is significant at 29.1% in organizational innovation.

f. The effect of knowledge management ( $X_2$ ) on learning organizations ( $Z_3$ ) obtained a structural coefficient of 0.423 and p-value  $< 0.001$ . Since p-value  $< 0.05$  and the coefficient are positive, it indicates a significant and positive effect between knowledge management ( $X_2$ ) on learning organizations ( $Z_3$ ). It means that higher knowledge management ( $X_2$ ) will result in higher learning organization ( $Z_3$ ). Thus, the research hypothesis 8 is accepted.

The findings of this study also support the research conducted by Liao & Wu (2010). The study explained that companies should be able to adapt and update their knowledge to maintain the ability to innovate. In addition, it was also explained that the relationship between knowledge management and organizational innovation at the time the research was conducted became an important issue in both the world of research and practice. Sampling of this study was based on companies that entered the Common Wealth Magazine's Top 1000 manufacturers and Top 100 financial firms in 2007. The number of samples was 327 samples in which the collection mechanism was carried out using mail questionnaire distribution techniques. The results of the study indicated that organizational learning is a mediating variable between knowledge management and organizational innovation variables. The study also mentions that, like a system, knowledge management is an important input, learning organization is a key process, and organizational innovation is a critical output.

g. The effect of knowledge management ( $X_2$ ) on organizational innovation ( $Y$ ) obtained a structural coefficient of 0.083 and p-value of 0.087. Since p-value  $> 0.05$  and the coefficient are positive, it indicates there is no significant effect between knowledge management ( $X_2$ ) on organizational innovation ( $Y$ ). Thus, the research hypothesis 9 is rejected.

The findings of this study also support research conducted by Darroch (2005) entitled "Knowledge Management, Innovation and Firm Performance". The study, which involved a sample of 50 industrial company employees, could present knowledge management as a coordination mechanism. Empirical evidence supports the view that companies with good knowledge management capabilities will use resources more efficiently and be more innovative and have better performance.

The findings of this study also support the research conducted by Liao & Wu (2010). Their research explained that companies should be able to adapt and update their knowledge to maintain their ability to innovate. In addition, it was also explained that the relationship between knowledge management and organizational innovation at the time the research was conducted became an important issue in both the world of research and practice. Sampling in this study was based on companies that entered the Common Wealth Magazine's Top 1000 manufacturers and Top 100 financial firms in 2007. The number of samples was 327 people whose mechanism of collection used was mail questionnaire distribution. The results of the study indicated that organizational learning is a mediating variable between knowledge management and organizational innovation variables. This study also stated that, like a system, knowledge management is an important input, learning organization is a key process, and organizational innovation is a critical output.

In addition to direct effect testing, SEM also includes indirect effect testing. Indirect effect is the result of multiplying 2 (two) direct effects. Indirect effect is significant if the two direct effects that make it up are significant. The following are the results of indirect effect testing:

Table 1.

*WarpPLS analysis on indirect effect*

Relationship between Variables	Total Effect		Absolute Contribution	Description
	Coefficient	p-value		
Transformational Leadership (X1) → Organizational Innovation (Y)	0.433*	< 0.001	18.75%	Significant
Knowledge Management (X2) → Organizational Innovation (Y)	0.172*	0.002	2.96%	Significant

Description: \* significant, ns not significant

Based on Table 1, there are two total effects as follows:

1) The effect of transformational leadership (X1) on organizational innovation (Y) obtained a total effect coefficient of 0.433 and significant. If the coefficient is squared and multiplied by 100%, it will make an absolute contribution. Thus, the absolute contribution to the effect of transformational leadership (X1) on organizational innovation (Y) is 18.75%.

The findings of this study support the theories that have been suggested by Burns (1978) and introduce the theory of transformational leadership developed by Bass (1985). The basic definition of transformational leadership theory is by use intellectual stimulation, leaders can expand and elevate the interests of their employees and stimulate members to think of old problems in new ways. The findings of this study also support previous studies conducted by Jung et al (2003). The research focused on the relationship between transformational leadership and organizational innovation. This study examined four hypotheses related to how leadership types such as transformational leadership directly or indirectly affect the innovation of a company. Samples from this study were taken from 32 different companies in Taiwan that focused on the electronics and communication industries. The results of this study show that the type of leadership, i.e. transformational leadership, is able to provide a positive and significant direct effect on organizational innovation. In addition, transformational leadership is also identified as able to provide a positive and significant effect on empowerment and innovation-supporting organizational climate. This research is different from previous research. Previous research found that transformational leadership has a significant and negative effect on organizational innovation.

The findings of this study also support previous research conducted by Gumusluoglu & Ilsev (2009). The research is unique compared to other studies that examine the relationship between transformational leadership and organizational innovation. This research provides a novelty regarding the condition when the relationship between transformational leadership and organizational innovation occurs or condition when the relationship increases. This research was also conducted to investigate the relationship between transformational leadership and organizational innovation. Then, this study is also intended to determine whether there are internal or external factors that can affect the relationship between these variables. Internal factors in this study are used as moderating variables where the variable is internal support for innovation. Moreover, the external factors intended here are support from outside the organization related to knowledge and also resource acquisition. The sample in this study were 163 respondents who came from employees and also managers from 43 micro and small companies of software developers in Turkey. The results of this study show that transformational leadership can affect creativity at the individual and organizational level. At the individual level, there is a positive relationship between transformational leadership and individual employee creativity. In addition, transformational leadership affects individual creativity through psychological empowerment. At the organizational level, transformational leadership is able to positively have an effect on organizational innovation that is measured using a tool called market-oriented criterion that is developed specifically for developing countries as well as emerging industries.

The findings from the results of this study also support previous studies conducted by Khan et al (2009). The study was conducted with a purposive sample involving 296 managers from Pakistan's



telecommunications sector. The age range of managers is 25 to 60 years with an average age of 42.5 years ( $SD = 11.27$ ). The hierarchical regression model shows that organizational size significantly moderates the relationship between transformational leadership. Subsequent results revealed that organizational size significantly moderates the relationship between all aspects of transformational leadership (charisma, inspirational motivation, intellectual stimulation and individual consideration) and organizational innovation except for ideal effects. The results also showed the positive and significant effect of transformational leadership on organizational innovation.

The findings from the results of this study also support previous studies conducted by Hsiao et al (2011). The study was conducted with a sample of 330 teachers who were responsible for administration in post-secondary schools. The findings in this study prove that transformational leadership and learning organizations have a significant positive relationship to organizational innovation. This study also shows a significant influence on the role of mediation in organizational learning on the relationship between transformational leadership and organizational innovation. The study shows that if principals use transformational leadership strategies and learning organizations at the same time, learning organizations will be very effective in achieving organizational innovation in post-secondary schools.

The findings of this study also support previous studies conducted by Hsiao et al (2009) which involved a sample of 418 teachers from 20 vocational high schools in the northern region of Taiwan. The final sample numbered 290 teachers consisting of 141 (48.6%) men and 149 (51.4%) women. Among them 39.7% had a bachelor's degree, 56.6% had a master's degree and 2.8% had a doctoral degree. Descriptive statistical analysis, correlation, and regression analysis were carried out as statistical methods in this study. The results showed that transformational leadership was significant at 41.3% on organizational innovation. Therefore, these findings support Hypothesis 1. Model 2 revealed that for public school teachers, transformational leadership is very influential for learning organization and is significant at 58.1% in organizational innovation. Model 3 also revealed that for private school teachers, transformational leadership is very influential for learning organizations and is significant at 29.1% in organizational innovation.

2) The influence of knowledge management ( $X_2$ ) on organizational innovation ( $Y$ ) obtained a total effect coefficient of 0.172 and significant. Thus, the absolute contribution of the effect of transformational leadership ( $X_1$ ) on organizational innovation ( $Y$ ) is 2.96%.

The findings of this study also support the research conducted by Darroch (2005). The study involved a sample of 50 industrial company employees and could present knowledge management as a coordination mechanism. Empirical evidence supports the view that with good knowledge management skills, companies will use resources more efficiently and more innovative and have better performance.

The findings of this study also support the research conducted by Liao & Wu (2010). Their research explained that companies should be able to adapt and update their knowledge to maintain their ability to innovate. In addition, it also explained that the relationship between knowledge management and organizational innovation at the time the research was conducted became an important issue in the world of research and practice. The sample used in this study is based on companies that entered the Common Wealth Magazine's Top 1000 manufacturers and Top 100 financial firms in 2007. The number of samples taken was 327 samples whose collection mechanism used mailing questionnaire techniques. The results of the study indicated that learning organization is a mediating variable between knowledge management and organizational innovation variables. This study also stated that, like a system, knowledge management is an important input, learning organization is a key process, and organizational innovation is a critical output.

Based on the value of the absolute contribution, the effect of transformational leadership on organizational innovation is far stronger than the effect of knowledge management. Thus, efforts to increase organizational innovation in high school accredited with A accreditation in Pontianak City, belong to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia, are prioritized by promoting and increasing the implementation of transformational leadership.



## 5. Closing

Based on the results of the research obtained and the above discussion section, this chapter will present conclusions and suggestions as follows:

### 5.1 Conclusions

a. Transformational leadership ( $X_1$ ) has a significant and positive effect on the empowerment ( $Z_1$ ) of high schools that have accreditation A in Pontianak City belonging to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia. The results of the analysis showed that transformational leadership is able to contribute in predicting the empowerment of the teachers.

b. Transformational leadership ( $X_1$ ) has a significant and positive effect on the creativity of members ( $Z_2$ ) of high schools that have accreditation A in Pontianak City belonging to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia. The results of the analysis showed that the creativity of the teachers is able to positively have an effect on the intelligence of students and also the performance of the teacher's work.

c. Transformational leadership ( $X_1$ ) has a significant and positive effect on the learning organization ( $Z_3$ ) of high schools that have accreditation A in Pontianak City belonging to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia. In other words, transformational leadership can affect the learning organization. The results of the analysis test showed that there is a positive and significant relationship in the two research hypotheses.

d. Transformational leadership ( $X_1$ ) has a significant and positive effect on organizational innovation ( $Y$ ) of high schools that have accreditation A in Pontianak City belonging to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia. The results of the analysis showed that transformational leadership is very influential on the innovation carried out by the organization.

e. Empowerment ( $Z_1$ ) has no significant and positive effect on the organizational innovation ( $Y$ ) of high schools that have accreditation A in Pontianak City belonging to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia. The results of the analysis showed that empowerment has a significant effect on organizational innovation.

f. Member creativity ( $Z_2$ ) has a significant and positive effect on organizational innovation ( $Y$ ) of high schools that have accreditation A in Pontianak City belonging to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia. The results of the analysis showed that creativity members have a significant effect on organizational innovation.

g. Learning organization ( $Z_3$ ) has a significant and positive effect on organizational innovation ( $Y$ ) of high schools that have accreditation A in Pontianak City belonging to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia. The results of the analysis showed that learning organization have a significant effect on organizational innovation.

h. Knowledge management ( $X_2$ ) has a significant and positive effect on learning organization ( $Z_3$ ) of high schools that have accreditation A in Pontianak City belonging to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia. The test results of the analysis showed that knowledge management had a significant effect on learning organizations.

i. Knowledge management ( $X_2$ ) has a significant and positive effect on the organizational innovation ( $Y$ ) of high schools that have accreditation A in Pontianak City belonging to Christian and Catholic foundations which consist of SMA Kristen Immanuel, SMA Katolik Santo Petrus, SMA Santo Fransiskus Asisi, SMA Santo Paulus, SMA Gembala Baik and SMA Bina Mulia. The results of the analysis show that knowledge management has a significant effect on organizational innovation.

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